



BOAT SAFETY SCHEME

Go boating - Stay safe

BSS Annual Report 2022–23





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Section 1



BSS Manager's Foreword

The Boat Safety Scheme (BSS) is a public safety initiative delivering safer boating on Britain's inland waterways and supporting the legal duties of their navigation authorities. It relies on the dedication and commitment of over 140 authorised independent Examiners, a small team of staff, and a larger group of stakeholders including volunteers, navigation authority officers, and marine sector professionals.

During the 2022-23 financial year the Scheme was challenged by rising inflation, the cost-of-living crisis, and the increasing popularity of both leisure and residential use of waterways. Despite this, the Scheme sustained its operations, crucially delivering the outcomes on which navigation authorities, our professional Examiners, and the boating community depend.

We worked extensively with our stakeholders (navigation authorities, trade, and Examiners) providing training packages to help with our aim of continual improvement in delivering consistent Examinations. This reflects our evolutionary approach to our training programmes, addressing drivers for change arising from the BSS Risk Management Process that reflects changes in legislation, appliances, fuels, power sources, boat construction, Marine Accident Investigation Branch (MAIB) recommendations, and our operating environment.



In conclusion, we enjoyed an extremely successful year despite ongoing challenges. We delivered all our outcomes and are looking forward to next year with confidence.



Section 2



Introduction, the BSS in 2022-23

Introduction

Since 1997, the BSS, co-owned by the Canal & River Trust and Environment Agency, has protected people and property either on, or nearby, the waterways, by reducing the risk of boat fires, explosions, and boat pollution.

Our work relates to the condition and use of powered or fuelled engines, systems, and equipment on boats. Our roles are defined by the UK's inland navigation authorities and include:

- ✪ BSS stakeholder committees evaluating and maintaining sets of national safety requirements and associated Examination checks for private boats, hire boats, and other non-private vessels.
- ✪ Providing a quality-assessed Examination service using checks to verify boats meet relevant BSS Certification and issue this appropriately.
- ✪ Promoting safety advice to help people identify and manage known risks.
- ✪ Monitoring reported boat-related incidents and accidents, and risks and trends concerning current potential future issues – feeding this into a risk register.



Immediate, middle, and long-term challenges

- ✪ Alongside the growth of the marine leisure sector on the inland waterways, a legacy of people have limited boating experience and potentially lack appreciation of marine risk management needs. For example, during the COVID-19 pandemic many novices became boat owners with modest experience, little training, or limited boat specific risk management knowledge.
- ✪ The BSS successfully helped persuade Calor to make a temporary and limited reversal of its policy to withdraw some small gas cylinders from its product lines.

When the UK's leading supplier of gas to the marine sector announced the withdrawal in early 2023, we immediately recognised a potential increased safety risk, because a significant number of smaller cruisers and sailing boats have gas lockers specifically sized to fit the disappearing cylinders.

Our concerns, shared by others, were that while other gas suppliers with small cylinders may help bridge the product gap in some locations, many boats may need to modify both gas storage arrangements and gas supply systems.

The costs of these works, and the possible shortfall of suitably skilled people to undertake them, may tempt some owners to take safety-impacting short-cuts with people fitting sub-standard equipment, components, and alternative appliances unsuitable for marine use and/or without independent certification to relevant standards.

The success with Calor is part of our overall strategy to have a buffer period while we work with the LPG industry, the marine sector, and our other stakeholders to promote and persuade boaters to choose competent gas engineers to install safe gas storage and systems. The BSS risk-mitigation work continues.

- ✪ The rise in the use of very low budget, imported oil-fuelled heaters sold online, and the increasing use of lithium batteries for portable devices and appliances, as well as domestic and motive power, all increased our challenges. We worked with sector partners and carried out further ongoing research, to understand and quantify the risks and develop associated programmes.



Section 2



Introduction, the BSS in 2022-23

Advisory Committee - Chair's Report

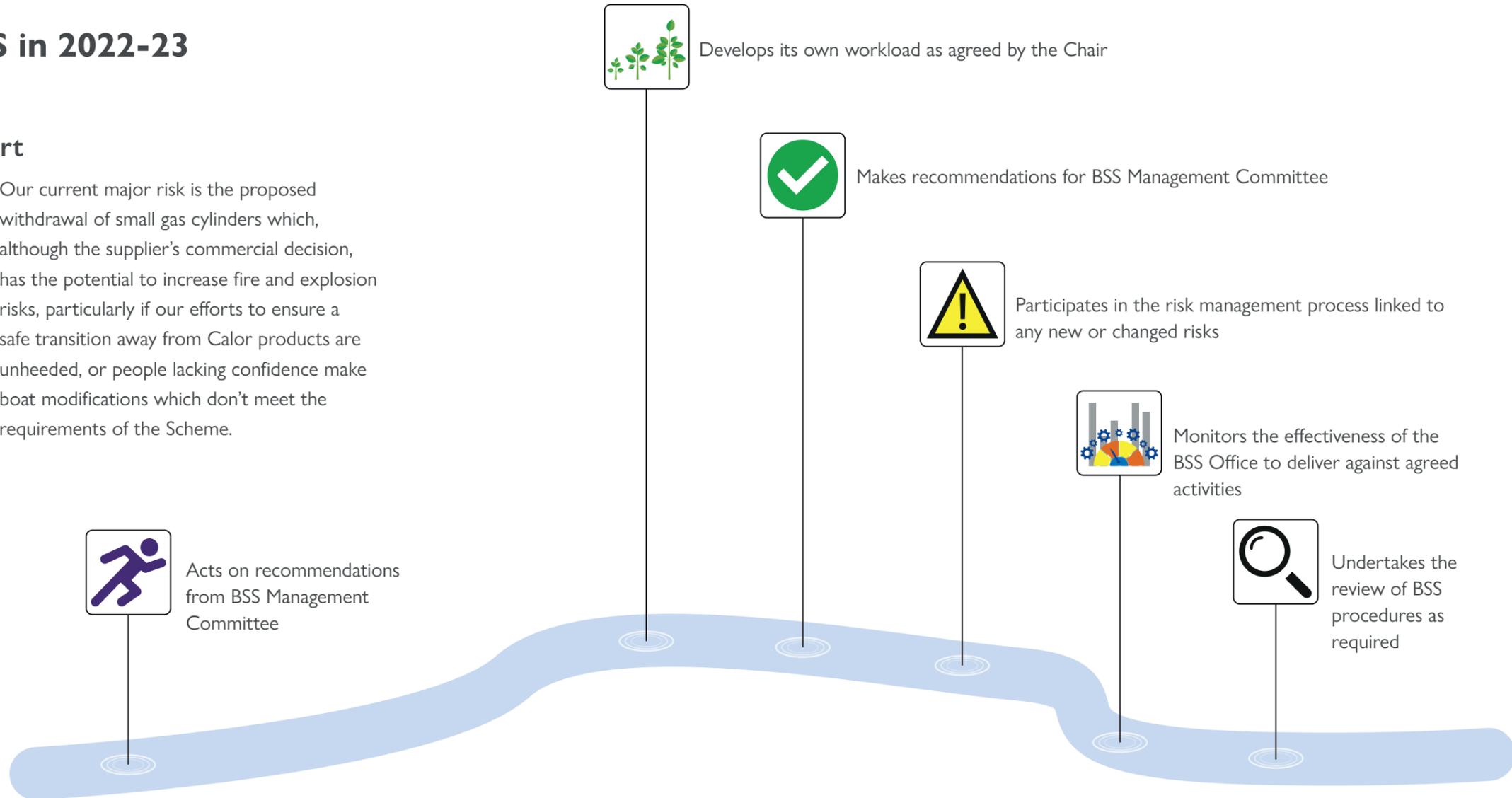
The BSS Advisory Committee (BSSAC) advises the BSS Management Committee (BSSMC) on all aspects of operating the Scheme. It comprises members drawn from navigation authorities, BSS Examiner representative bodies, the marine industry, and boat user organisations. Its purpose is to agree cross-sector recommendations to the BSSMC.

The BSSAC receives proposals from the BSS Technical Committee and considers how they can be applied within the aims of the Scheme. It also reviews BSS operations and looks to identify future trends impacting on the Scheme's risk assessment.

In 2022-23 it completed the consultation phase of the revised Examination Checking Procedures (ECPs), established terms of reference for a fundamental review of the Conditions of Registration for Examiners, and most recently confirmed recommended action responding to Calor's withdrawal of small gas cylinders.

Committee members continue to monitor the Scheme's ability to meet objectives, and its continual drive for quality and consistency.

Our current major risk is the proposed withdrawal of small gas cylinders which, although the supplier's commercial decision, has the potential to increase fire and explosion risks, particularly if our efforts to ensure a safe transition away from Calor products are unheeded, or people lacking confidence make boat modifications which don't meet the requirements of the Scheme.



In conclusion, our success in persuading Calor to temporarily suspend the removal of some small gas cylinders from its product lines, endorsed our pledge to work with the LPG industry, the marine sector, and our other stakeholders to promote and persuade boaters to choose competent gas engineers to install safe gas storage and systems. We will strengthen our risk-mitigation work in 2023.



Section 3



BSS Finances

BSS 2022-23 end-of-year financial accounts

The Scheme operates on a non-profit basis with any surplus or deficit being addressed.*

Income is generated by Examiner subscription fees and the sale of Certifications which cover the

costs of the Scheme's administration and crucial technical and professional support. The completed financial accounts for our financial year 2022-23, as compiled and audited by the Canal & River Trust's financial team, appear in the table below:

Accounts	Plan	Actual
External Income	901,550.00	937,554.33
Payroll Costs	(367,828.79)	(368,506.48)
Staff Related Costs	(29,627.80)	(9,007.05)
Materials & Contracts	(4,036.30)	(4,080.62)
Operational Costs	(10,035.22)	(9,848.62)
Premises Costs**	(1,259.31)	(1,261.13)
Office Costs***	(55,230.50)	(54,279.36)
Professional Fees	(417,277.17)	(455,618.42)
Non-Operational Costs	(13,583.83)	(13,828.39)
Controllable Costs	(898,878.92)	(936,430.07)
Total	2,677.08	1,124.26

* The net balance shows a surplus of income over plan of 0.12% (The BSS is administered by the Canal & River Trust which will absorb a small surplus or cover a small deficit).

** Premises costs include mobile telephones and other utilities.

*** Office costs include meeting costs, printing, postage, subscriptions, and computer costs.



The 2022-23 Business Plan was delivered successfully. Sales were in line with Examination-led expectations and controllable costs were in line with the predicted and planned activity of the scheme.



Section 4

BSS in Figures

The BSS continues to be supported by the majority of the UK's navigation authorities and as a consequence operates on over three quarters of UK waterways by length.

Whether a boat moves from the Broads to Brecon or the Highlands to Kent, a valid BSS Certification can be used to support a boat registration with navigation authorities in England, Scotland, and Wales.

During 2022-23 there were **149** registered Examiners.

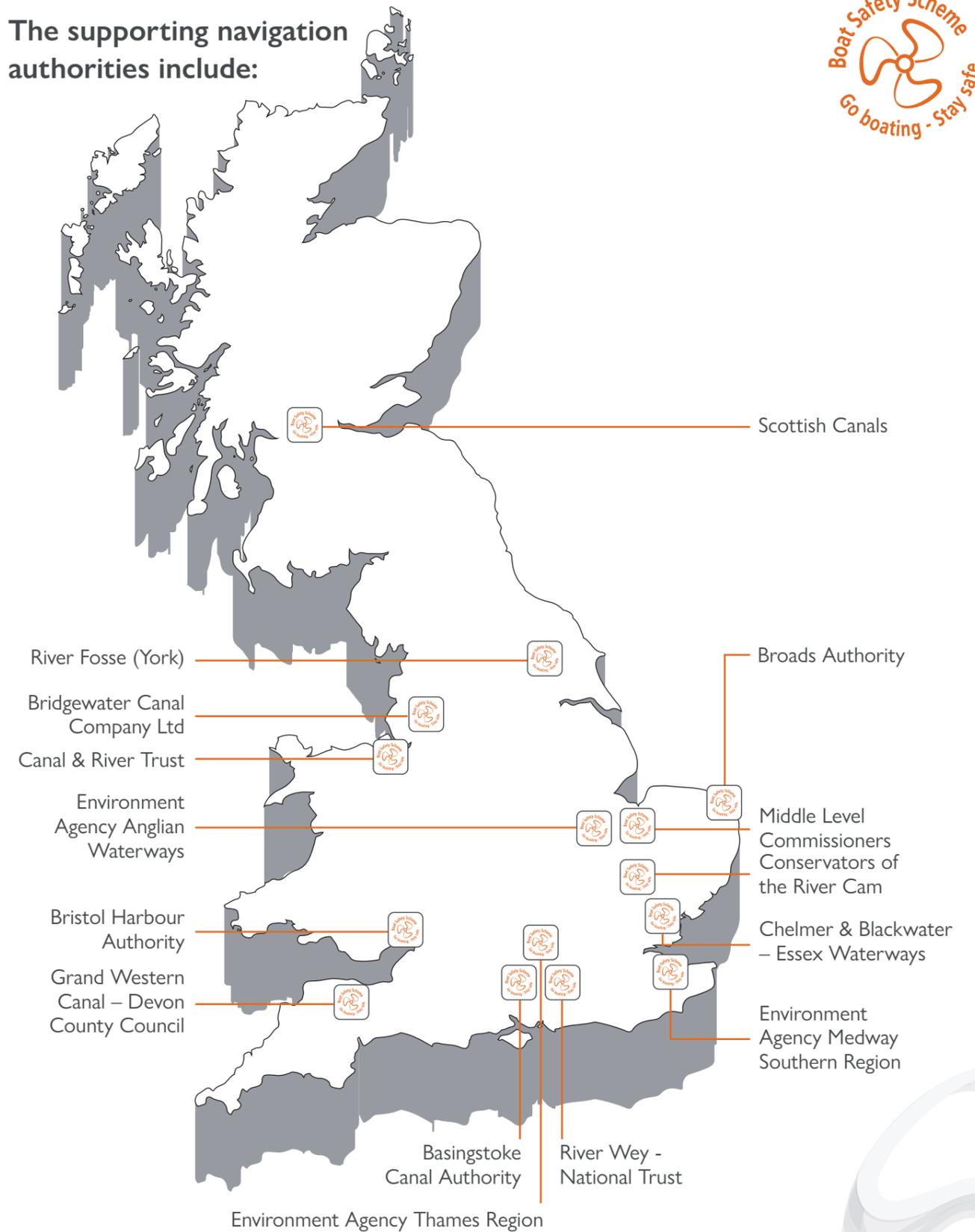
Approximately 80,000 boats are subject to a BSS Certification. The types of craft include narrowboats, broad beam, glass reinforced plastic both for private use and hire, and other commercial and community boats such as workboats, small passenger boats, floating retailers, offices, marshalling and safety boats, galleries, and theatres.

In this financial year **20** BSS Trainees successfully completed the New Examiner Training Programme, which was fully revised in 2021. We expect to welcome around another **20** new Examiners in 2023-24.

In an average year there are:



The supporting navigation authorities include:



Section 4



BSS in Figures

In 2022-23:

- Over 23,500 Examinations were carried out – the second highest number in the last decade.
- 16,018 Certifications were issued, of these:
 - 92.6% were privately-owned boats in private use.
 - 5.4% hire boats.
 - 2% non-private boats (for example, work boats, ferries, small passenger boats etc).
- Examiners made 45,600 comments against non-compliant checks.
- The advice check for under ventilation (linked to the risk of carbon monoxide poisoning) was not complied with on 2,600 boats at the point of BSS Certification.
- Over 300 boats were missing the vital protection of all circuits passing through an AC consumer unit.
- The third most frequent non-compliant advice was – Is the vessel provided with adequate means of escape? – meaning that crews in 239 boats could struggle, or be trapped, in an emergency.
- 34,000 mandatory requirement checks were not complied with in 7,600 Examinations.

- The most common mandatory non-compliance was: Are batteries secure against excessive movement in any direction? 2,275 boats had loose batteries and risked catching fire.
- The next most common non-compliance was a lack of carbon monoxide (CO) alarms – over 1,700 boat crews were unprotected from this gaseous toxin which cannot be seen, heard, smelled, or detected by any other alerting system.

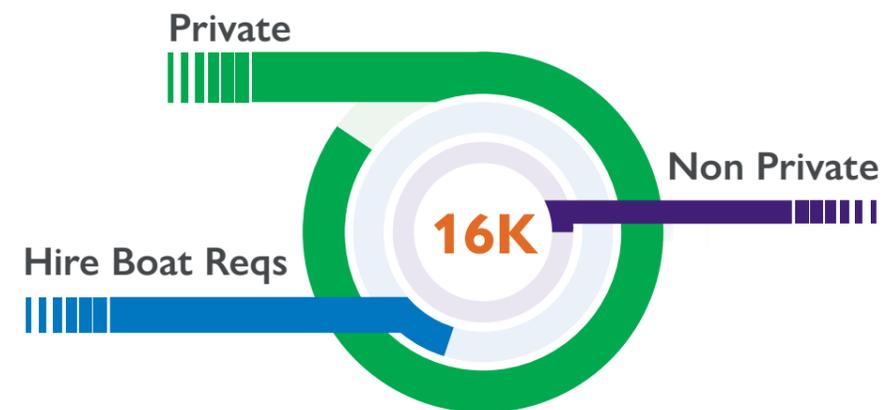
Compliant CO alarms independently certificated to BS EN 50291 are required on boats with cabins. They cost less than a round of drinks (from £12.30) and are readily available from high street retailers, trading park stores, supermarkets, chandleries, and online outlets. Do not allow your crew to be unprotected. See www.boatsafetyscheme.org/co for more detail).

- The third most common check not complied with was: Is the LPG system free of leaks as defined in the tightness test? There were 1,200 boats found with gas leaks, and a further 340 that could not be confirmed as leak-free because there were no means of testing the system.

Numbers of BSS Examinations undertaken within the largest navigation authorities during 2022-23.

Authorities	Examinations
Canal & River Trust	14,308
EA - Thames	2,904
Broads Authority	2,696
EA - Anglian Rivers	1,492
Trailer / hard standing away from navigation	503

Certification types issued



- We undertook a review of the Examiner Checking Procedures (ECPs) which led to many editorial changes, to help everyone's understanding of the BSS Checks aiding greater consistency by BSS Examiners and increased compliance by boat owners, and assisting the navigation authorities and marine trade with understanding the requirements.
- Expanded and improved the appendices to the ECPs to aid understanding and therefore compliance with the requirements.
- The ECP revision project also fed into further improvements to BSS Examiner training programmes.

In conclusion, our commitment to safety saw over 23,500 Examinations – the second highest in the last decade. These resulted in 45,600 comments against non-compliant checks. We have improved the text of the ECPs and will be promoting the need to comply with requirements at all times.

Section 5



BSS Training & Quality

BSS Training

During 2022-23 we worked closely with our consultants to achieve a long-held goal of assured recognition for our Training Courses. These met the City and Guilds criteria and can carry this logo:

- New Examiner Training Programme.
- BSS Examiner Core LPG Course.
- BSS Examiner Core Electrical Course.
- BSS Examiner Hire Boat Regulations Course.
- BSS Field Assessor Course.



Examiner Improvement Programme

Throughout the year, our training team of staff and contractors were involved in an ongoing Examiner Training Programme. This programme delivered the new and existing Examiner Training comprising:

The training material included 2,225 questions, of which 1,408 were embedded into knowledge modules and 817 were in final assessment modules. All existing Examiners successfully completed their learning in 2022-23.

17 full modules

24 knowledge courses

20 having assessment modules

Hire Boat Training

We ran two BSS Hire Boat Requirements Upgrade Courses for 16 Examiners - increasing the geographic density of Examiners across the country. The Courses included attended events and online elements.

Quality Assurance

The Scheme now has three Quality Assurance Assessors, and in 2022-23 they achieved 63 active assessments.

BSS Quality Assurance Assessments are a supportive two-way review process for BSS Examiners, which have two formats. It can be a Desktop Assessment (DtA) where the assessor reviews a minimum of three Examinations

All existing BSS Examiners trained and authorised in 2017 to undertake Hire Boat Requirements Examinations had to undertake two online modules to remain authorised, which ensures their knowledge is current, and their understanding is identical to newly trained Examiners.

including all notes, records, and reports; or Field Assessments, an on-boat review of on-site practises and processes.

The assessments are a valuable opportunity for Examiners to have constructive discussions with the Assessor and another opportunity to give feedback, raise queries, and make suggestions.

Personal Improvement Plans can be assigned which prompt follow-up actions to confirm progress.

In 2022-23

- 63 Examiners were quality assessed using the new DtA Programme.
- The DtA programme helped Examiners to either improve record keeping or make corrections to previous Examinations.

- The next stage is to build on the DtA programme, and we are devising a new field assessment process and programme in 2023 to replicate the success of the DtA in field-based activities.



In conclusion, we continued to expand BSS Training and Development Programmes. Throughout the year, our ongoing Examiner Training Programme delivered an extensive range of well-received professional modules newly holding City & Guilds recognition. We increased our cohort of Examiners, replacing leavers and filling gaps. We also have additional Quality Assurance Assessors and boosted that programme.



Section 6



BSS Priorities

Some examples of 2023-24 Priority Projects and our future work

Withdrawal from the market of small LPG cylinders by Calor Gas

Calor Gas, the market-leading supplier of small gas cylinders commonly used in smaller boats, announced a withdrawal from the market.

We want our concerns to be addressed that modifications for larger cylinders and alternative systems, may lead to non-compliant systems and newly introduced hazards over the next few years. We will continue to work on communications and other controls to help mitigate the risks associated with this unplanned situation.



Improving Compliance

We will enhance support to the navigation authorities in understanding and monitoring the compliance with the BSS Requirements.

We will provide advice and staff training to the navigation authorities' workforces on matters relating to the condition and use of boats. We will also increase engagement with boating customers and the marine trade in promoting continued compliance with the Requirements.

Non-Private Boat Requirements

We will undertake a review of the current policies and standards that are based on original Non-Private Boat Requirements

published in 1997 and develop proposals for consultation on a set of modernised BSS Non-Private Boats Requirements.

BSS Hire Boat Requirements

We are reviewing the Requirements and recommendations for dual control on craft following a request from the Marine Accident Investigation Branch (MAIB) into a serious accident in 2022.



In May 2022, the MAIB published an investigation of a fatal drowning when a boat hirer fell overboard from a hire cruiser with dual-control positions. This was a result of the crew losing control of the boat which accelerated and hit a quayside with force.

The MAIB report recommended a technical review of risks associated with multiple-helm positions or control systems.

The MAIB asked us to consider introducing a requirement to incorporate interlocks to prevent inadvertent engine operation from an inactive helm position. This would likely have prevented the loss of control in this event.

This project started in Autumn 2022 and will continue into the new 2023-24 operating year, including any proposals for new requirements going to public consultation. The work is crucially supported by British Marine and relevant hire boat operators to define appropriate specifications and controls.



Section 6

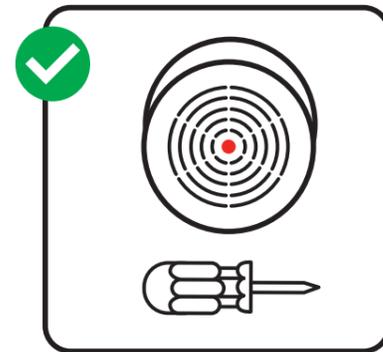
BSS Priorities

All Requirements – proposals for Smoke Alarm Requirements and checks

BSS Committees were asked by navigation authorities to consider a potential role for smoke alarms to help combat some of the risks linked to fires starting and spreading. In 2019, BSS Requirements were introduced to protect boat hirers.

After a review in 2022-23, the Technical and Advisory Committees recommended that navigation authorities introduce proposals for mandatory smoke alarms to help reduce the risk of fire spreading to affect people and property beyond the original craft on fire.

A public consultation supporting these was drafted for publication in Autumn 2023.



BSS Examiners field app – for recording and reporting BSS Examinations

We are developing a mobile-first field-based recording app for tablets and mobile devices to aid Examiners with direct entry into the database and provide as much support on site as possible. It will include offline functionality.

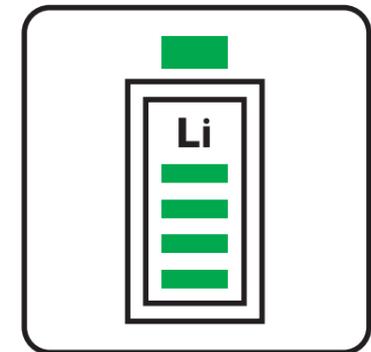


Risk review – lithium batteries

Lithium battery technology is advancing fast and has many potential advantages.

However, fire services, insurers, the marine trade, and the BSS are already beginning to see safety issues being raised. We are working on various ways to identify the specific circumstances and means of mitigating risks.

We are developing advice and recommendations for publication in Autumn 2023.



Customer Service Improvements

We have halved response times for dealing with customer requests and queries, following the appointment of a customer service officer.

We are planning further improvements in response times, quality, and consistency in our approach in 2023-24.





BSS Priorities

Technical Committee – Chair’s Report

BSS Technical Committee (BSSTC) is the specialist stakeholder committee making recommendations to the BSS Advisory Committee concerning issues of a technical nature.

The BSS Technical Committee has a full cohort of representatives of the stakeholders. They attend regular meetings and contribute freely. There is a good balance of input from boat owners, Examiners, trade groups, and the navigation authorities. Following COVID-19, we have mainly held meetings by video conference. This has worked well, as the purely technical subject matter lends itself to this format.

Following many years devoted to supporting a review of the Private Boat and Hire Boat Requirements and Examination Checking Procedures, as well as the renewal training programme for existing Examiners, the Committee has returned to the routine workload of risk assessments and Examination appeals.

The technical issues that this Committee will handle are:

-  Updating BSS Requirements for Non-Private Boats.
-  Consulting on the potential introduction of smoke alarms as a requirement.
-  The 2023 withdrawal of small Calor gas cylinders.
-  Technology changes in electric boats.



In conclusion, 2022-23 saw the BSS majoring on mitigating the risks caused by Calor withdrawing some smaller gas cylinders from the market, improving compliance, undertaking a review of the current policies and standards for non-private boats, reviewing the requirements and recommendations for non-private boats, reviewing the requirements and recommendations for dual controls on hire boats, introducing smoke alarms, developing approaches to managing risk from the use of all types of lithium batteries on boats, improving reporting BSS Examinations, and enhancing customer service.

Technical Committee Structure

Organisation

Sector

Chair	Independent
British Marine (1)	Marine trade
British Marine (2)	Marine Trade
British Marine (3)	Marine Trade
Association of Boat Safety Scheme Examiners (ABSSE)	Practitioners
Surveyors Group Representative	Practitioners
Royal Yachting Association (RYA)	User Organisations
Association of Waterway Cruising Clubs (AWCC)	User Organisations
National Association of Boat Owners (NABO)	User Organisations
Inland Waterways Association (IWA)	User Organisations
Association of Inland Navigation Authorities (AINA)	Navigation Authorities

Contributors

Category

BSS Manager	Staff and consultants (non-voting)
BSS Business & Technical Manager	Staff and consultants (non-voting)
BSS Support Executive	Staff and consultants (non-voting)
BSS Lead Quality Control Assessor (Consultants)	Staff and consultants (non-voting)
BSS Quality Control Assessor (Consultants)	Staff and consultants (non-voting)

Section 7



BSS Incident and Risk Database

Small Craft Incident Data recorded by the BSS

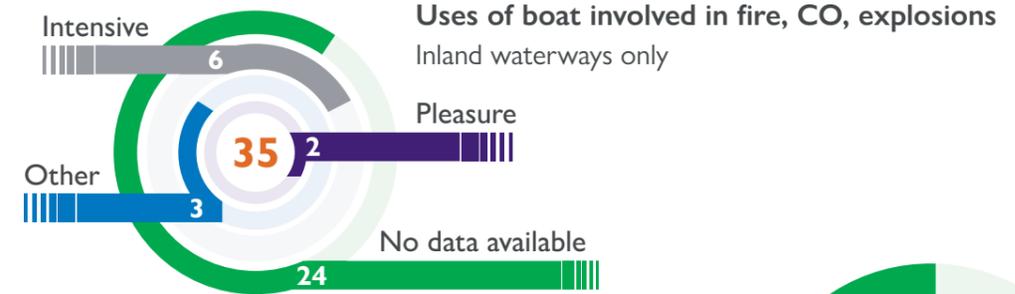
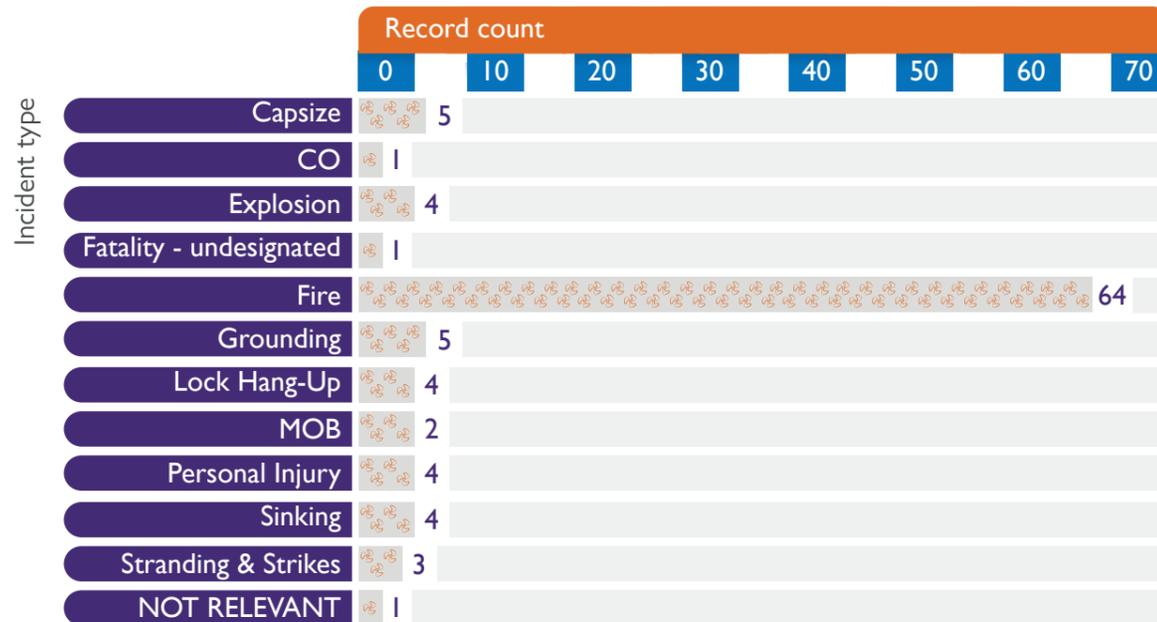
The BSS records incidents involving fires, explosions, and carbon monoxide poisoning on boats on all UK and Irish inland and coastal waters.

We extract any lessons or risk knowledge to help our committees and the navigation authorities in reviewing our Requirements and provide the best quality advice and information for boat owners to help keep themselves and their crews safe.

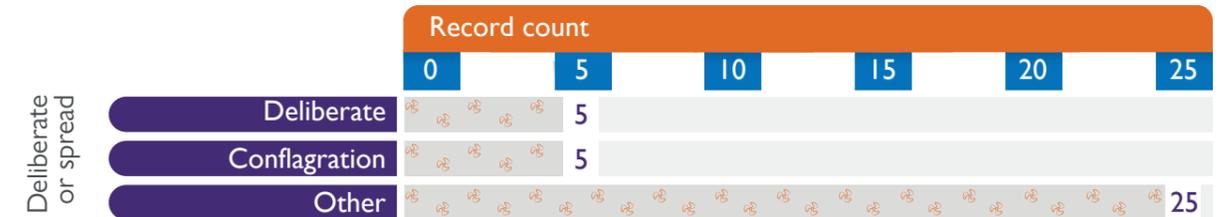
For the similar reasons, and with a slant towards our Hire Boat Requirements and Non-Private Boat Requirements, we record all grounding, striking, sinking, and man overboard (MOB) incidents, as well as personal injury accidents linked with boat fittings and design.

These are our headline figures for the 2022 calendar year.

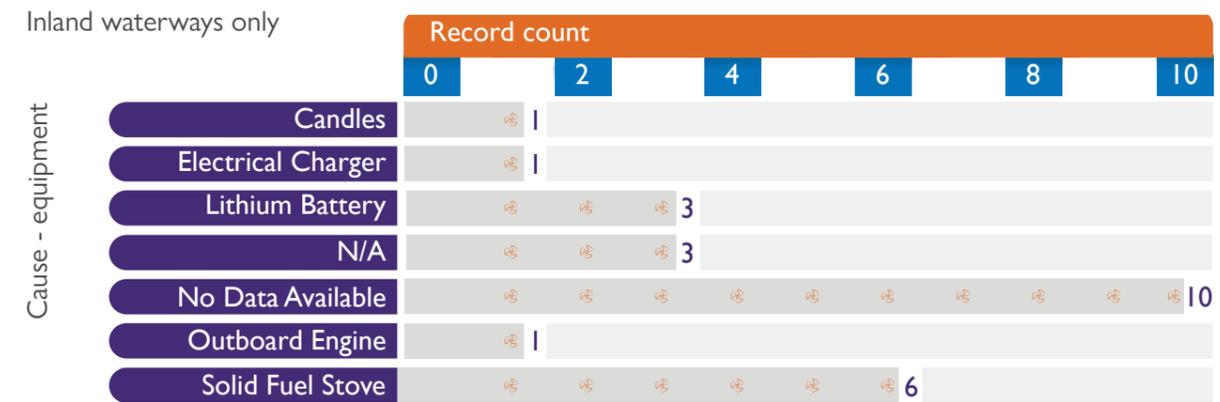
Incidents by type on all waters



Fire, CO, Explosion - Cause



Fire, CO, Explosion - Equipment



In conclusion, our detailed records and analysis of incidents continued to play a vital role in informing the Risk Management Process and helping boat owners and their crews use their craft safely.



Section 8



The BSS has experienced a challenging and rewarding year, but there are more challenges ahead.

Summary

The BSS had a challenging year meeting the demands of writing and creating multiple online and attended BSS Training Courses.

The award of City & Guilds Assured recognition was extremely satisfying and rewarding to the team of staff and delivery partners who made immense efforts to produce a high-quality programme to meet the wishes of the Examiners and the navigation authorities.

It was a record year for BSS Certifications issued and we also want to recognise the immense dedication of the BSS Examiners who contributed to this while finalising their 24 knowledge and 20 assessment modules. This was no mean feat.

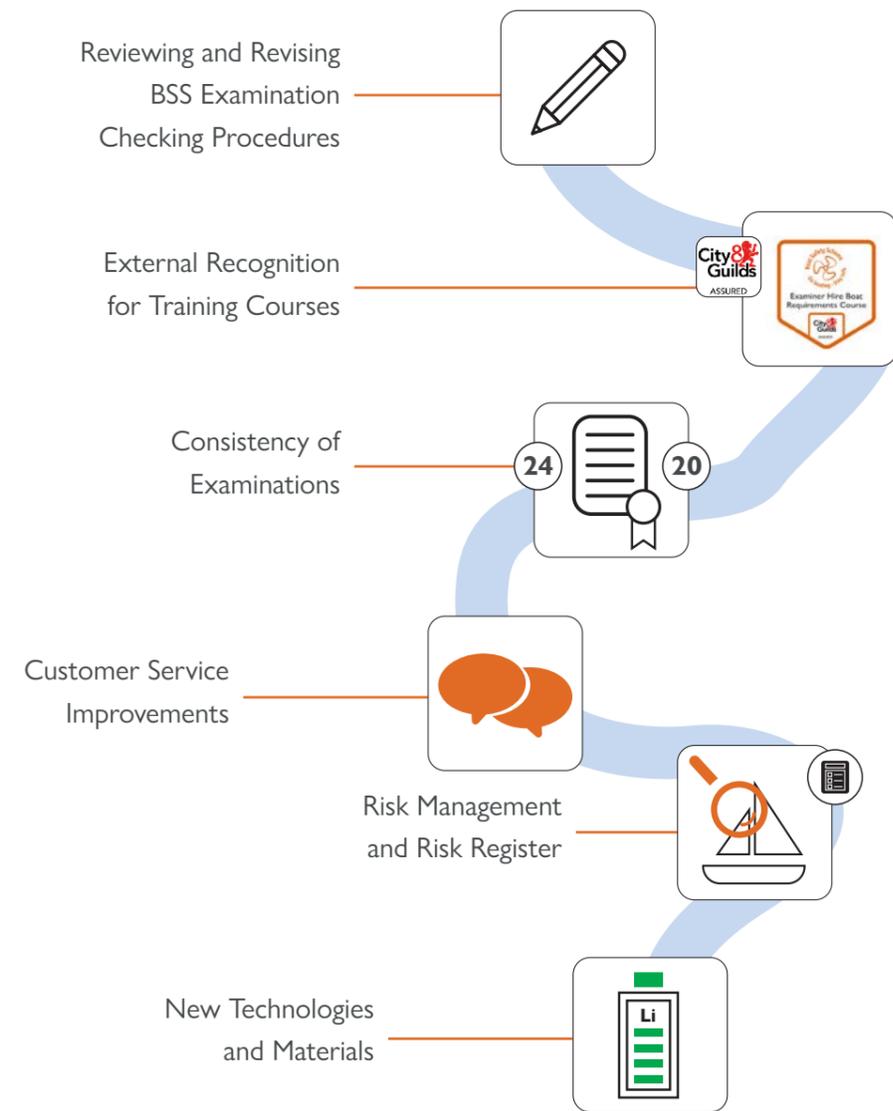
Finally, after some years of evidence gathering, debate and consideration, drafting and editing, our stakeholder committees finalised the review of the BSS Examination Checking Procedures for Private Boats. Their endeavours gave boat owners, Examiners, and the marine trade checks and procedures with enhanced clarity, enriched information, improved diagrams, and more consistency in terminology and writing style. Committee members should be justifiably proud of their contributions, and we are extremely grateful for their work.

We think the next two years will continue to be tough with financial issues affecting the UK, not least boat users.

The day-to-day BSS activities, such as our Training Courses, Examiner consistency, customer service, and the presentation of information is driven by an approach of continual improvement.

The BSS approach to managing risk is to use a risk register looking at current and future risks to guide our prioritisation.

New technology, new fuels, and new materials will continue to present challenges. We must overcome these in our role to help reduce risks to the navigation authority workforce, neighbours, and other visitors to these very special waters.



In conclusion, despite facing several challenges, we enjoyed an extremely successful year. Our key successes included:

- ☞ Persuading Calor to temporarily suspend the removal of some small gas cylinders from its product lines.
- ☞ Successfully delivering our 2022-23 Business Plan with sales and costs in line with our expected predictions.
- ☞ Conducting over 23,500 Examinations.
- ☞ Expanding our training and development programmes.
- ☞ Building on our key future priorities.
- ☞ Maintaining detailed safety records and analysis.





Boat Safety Scheme Contact Details

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All information correct at the time of publishing.

The Boat Safety Scheme is a public safety initiative owned by the Canal & River Trust and the Environment Agency. The Scheme is administered by the Canal & River Trust, a charitable company limited by guarantee registered in England and Wales with company number 7807276 and registered charity number 1146792.